

Classical logic in Islamic philosophy

Creating dichotomy or catalyst?

By SAFIA AOUDE

Introduction

Using classical Greek logic to explain the concept of a metaphor to his readers, the famous Islamic scholar Ibn Sina wrote in his book “*Qiyâs*”:

“So and so is beautiful. Everything beautiful is a moon. Therefore so and so is a moon.”

On the other hand, the equally famous Islamic scholar Imam al-Shafi’i is quoted to have said:

“People did not become ignorant, nor differed except after their abandonment of the Arabic language and their inclination to the language of Aristoteles!”¹

The words of Ibn Sina and Imam al-Shafi’i present each two opposites; one is using the methodology of classical Aristotelian logic to elaborate a metaphysical Islamic concept, the other one is claiming Aristotelian logic has ruined the basics of Islamic creed by the limitation of its semantics. Obviously, classical logic did play an important role in the development of philosophical ideas among Muslim scholars and philosophers, but there seems to be a dichotomous difference in approach.

The aim of my paper is to look into the views of some of the well known thinkers in Islamic philosophy, extracting their specific opinions towards Aristotelian classical logic. What use did Muslim philosophers have for Aristotelian logic in the development of their own ideas?

The early appearance of logic into Islamic context

Logic (Greek: λογική, logikē) is the formal systematic approach of reasoning, established through formative rules of definition, argumentation, validity and fallacies, as developed by the Greek philosopher Aristotle in his work *Organon* (app. 340 BC). With emphasis on divalent logic, the

¹ Al-Dhahabi, “*Siyar A’lam al-Nubala*” 10:74 and al-Suyuti in “*Sawn al-Mantiq*” p.15

science of classical Greek argumentation was traditionally divided into deductive and inductive logic, forming the basis of classical and modern scientific methodology.

Other classical civilizations (China, India) also developed argumentative methodologies, and especially Indian philosophies of logic had some influence on Persian and shia-Muslim development of logic. Shia-islamic jurisprudence and philosophy relies heavily on the use of logic for reasoning. However, this paper will concentrate solely on the *sunni-Muslim* approach to classical logic.

ʿIlm- Kalâm (Arabic: علم الكلام) is the name for the classical Muslim way of seeking Islamic reasoning through Aristotelian dialectics. In Arabic the concept means “*knowledge of speaking*”. The Kalâm tradition in Islam is based on finding theological premises through debate and argumentation under a "rational" discussion. In short, *ʿIlm ul-Kalâm* is the science in which Islamic *aqîdah* (creed) is understood not merely within the framework of the Qur'ân, or the Sunnah, or the opinions of the first three generations of Muslims (7th century), but also through reasoning of the scholars. *ʿIlm al-Kalâm* was the forerunner of the later stylized argumentative methodology called *mantiq* – the Islamic tool of reasoning.

The development of *mantiq* (Arabic: منطق) in classical Islam originally began with the Islamic etiquette of differing in opinion (*ʿilm al-ikhtilâf*) among scholars of Islamic *shariʿa*. In the urbanized Abbasid caliphate, Muslim scholars held regular debates among each other and with non-Muslims in order to sharpen their intellect through rhetoric skills, and to clarify issues of faith and jurisprudence.²

However, in the 8th century *mantiq* was considered initially to be part of the *foreign sciences*, mainly used for defining points of language. Since the Arabic language differed in syntax and grammar from the Greek language, many traditional Arabic Muslim scholars initially refused to accept *mantiq* as something of value to the development of Islamic philosophy. Thus we see early Muslim philosophers and scholars, such as Imam Shafiʿî, rejecting the idea of Aristotelian logic playing a possible part in Islamic discourse.

² These debates and translations of classical Greek works took place in the (بيت الحكمة); *Bait al-Hikma* – the first Muslim academical institution, established in 830 in Baghdad

The introduction of logic into Islamic philosophy (al-Kindi)

The Muslim philosopher Ya‘qûb ibn Ishâq al-Kindî (830) is generally described as being the first Muslim academic to translate large parts of the *Organon* into Arabic, adding his comments to the original text.³ He worked to analyze parts of the *Organon* into an Islamic context, trying to use classical methodology and philosophy (based on ideas of Aristotle and Plato) in answering questions of religious nature.

His ideas stirred the already rising intellectual battle between Mutazilites and Ash‘arites, and it is said that al-Kindî’s works have prepared the philosophical seeds for many of the later intellectual discourses between Muslim philosophers and scholars.⁴

Defending Aristotle (Al-Fârâbi)

In the ninth century the Muslim Abbasid scholar Abû Nasr al-Fârâbi (872-950) made his own translation of *Organon* (and other works of Aristotle), adding his own comments and writing his own treatises, mainly on the subject of syllogism. He also translated and commented on the analogical interference of works ascribed to Stoic logic. In fact, al-Farabi is known to have developed an independent definition of inductive syllogism based on human experience, foregoing European philosophers like Immanuel Kant, by including the methodology of analogical inferences into Islamic *mantiq*. In that way al-Farabi strengthened the essence of *qiyas* (analogy) in Islamic *shari‘a*.

In Al-Farabi’s famous treatise “*Ihsâ al-‘Ulûm*”, we find him “enumerating the sciences” the same way Aristotle did in *Organon*, dividing reason into 8 categories of argumentative definitions. Al-Farabi rejected the classical Muslim idea of *mantiq* only being useful for analysis of foreign grammar, claiming that rules of logic apply universally to all the languages of mankind, and not just to grammar – even to the “inner language”, i.e. the metaphysics of reasoning.⁵

³ al-Kindi (c.873) *Rasa'il al-Kindi al-falsafiyya (The Philosophical Treatises of al-Kindi)*, ed. M.A.H. Abu Ridah, Cairo: Dar al-fikr al-'arabi, 2 vols in 1, 1953

⁴ Majid Fakhry: “A History of Islamic philosophy”, Columbia University Press, New York, 1983, p. 66-94

⁵ Majid Fakhry: “A History of Islamic philosophy”, Columbia University Press, New York, 1983, p. 113

Al-Farabi's knowledge of and influence on the development of logic into Islamic philosophy was so apt, he was nicknamed "the Second Teacher" (referring to the Arabic habit of calling Aristotle "the First Teacher").

Philosophically, al-Farabi became famous for converting the legal tradition of classical Muslim *mantiq* from metaphysical understanding to pure scientific methodology, therein describing the limitations of human knowledge when trying to define Allah (swt) .⁶ This would later become a major point of argument against the validity of his philosophy by ibn-Taymiya.

Accepting logic as part Islamic conceptualism (Ibn Sina)

Living in the Eastern part of the Muslim world, relying on intuition and autodidact knowledge, the Muslim scholar, scientist and philosopher Al-Husayn Ibn Abdallah Ibn Sina (980-1037) also translated and commented on Aristotle. It is said that Ibn-Sina allegedly read Aristotle's "Metaphysics" 40 times, but was supposedly still unable to understand its contents, until he read al-Farabi's "Intentions of Aristotle's Metaphysics"⁷ finally opening his eyes to the ideas of classical logic.

According to Professor Aref Al-Attari, Ibn Sina describes the purpose of logic as "*one of enabling the intellect to acquire 'knowledge of the unknown from the known'.*"⁸ And indeed, Ibn Sina used the Islamic definition of "concept" (*ma'ana*) as a semantic value for any physical representation of a metaphysical notion, laying the methodical grounds for the later Western development of *conceptualism*.⁹

*"What corresponds to the mind to what is outside it."*¹⁰

⁶ Netton, Ian Richard (2008). "Breaking with Athens: Alfarabi as Founder, Applications of Political Theory By Christopher A. Colmo". *Journal of Islamic Studies (Oxford University Press)* 19 (3): 397–8.

⁷ Majid Fakhry: "A History of Islamic philosophy", Columbia University Press, New York, 1983, p.129-130

⁸ Aref Al Attari: "Logic in the Islamic Legacy: A General Overview", Faculty of Education, Yarmouk University –Jordan, lecture held at San-Yat Sun University Guangzhou- P.R. of China, March 2011, <http://bit.ly/lw7Rs3>

⁹ William of Ockham cites Ibn Sina's philosophical definitions of semantics as direct inspiration for his theory on conceptualism.

¹⁰ Osman Amin (2007), "Influence of Muslim Philosophy on the West", *Monthly Renaissance* no 17, page 11

Ibn Sina's biggest contribution to the history of logic was probably his presentation of a new system of logic, which actually replaced the use of Aristotelian logic in medieval philosophy. He sophisticated the Stoic traditions of hypothetical syllogism, and developed temporally modalized syllogism for use in scientific methodology.

The logical causality of fire and cotton (al- Ghazali)

The Muslim philosopher and scholar Mohammed Ibn Ghazali (1058-1111) owes both to Ibn Sina and to al-Farabi in his famous work on Islamic logic *Tahafut al-Falasifah* (The Incoherence of the Philosophers), in which he proposed and defended the Ash'arite theory of occasionalism. *Tahafut al-Falasifah* is a summary of Ibn Sina's original philosophical doctrines, wherein Ghazali is pointing out 17 logical errors in the treatise of the latter, at some points even accusing Ibn Sina of heresy.

Al-Ghazali wanted to fully separate logic methodology from (Greek) philosophy, using logic and rationalism as *argumentative tools* for *defending* Islamic values and doctrines. Logic was not to be a *part* of Islamic philosophy, but only a *tool* for extracting useful hidden knowledge.

As an example of this, Al-Ghazali wrote that “*when fire and cotton are placed in contact, the cotton is burned directly by God rather than by the fire*”, a claim which he defended using logic methodology by reasoning that fire was inanimate, burning the cotton only upon coming into contact with it, but not *cause* the cotton to burn due to a reason or will.¹¹

The argument that scientific observations and inductions ultimately are expressions of a supermundane will can be found also in today's arguments for theistic evolution. In *Tahafut al-Falasifah* Ghazali makes a clear reference to the classical Greek cosmological argument – the “First Cause” or “First Being” - which was heavily debated by Aristotle and Plato.

Back to Greece (Ibn Rushd)

The Muslim philosopher Muhammed Ibn Rushd (1126-1198) commented intensively on the works of Aristotle; however he had to rely on former Arabic translations of Aristotle's works. His philosophical approach towards logic was that logic is an important tool for the discovery of truth,

¹¹ *Al-Ghazali: Tahafut al-Falsifah, p. 281-283*

alongside Divine revelations and Prophetic traditions. Because different individuals have different levels of comprehension, Allah (swt) speaks to humans through three kinds of discourses: dialectical (*al-aqawil al-jadaliyya*); rhetorical (*al-aqawil al-khitabiyya*) and demonstrative syllogism (*al-aqawil al-burhanniyah*).

Ibn Rushd also advocated logic as a prerequisite to interpretation of Islamic revelations and Prophetic traditions.

Refuting al-Ghazali's *Tahafut al-Falasifah*, Ibn Rushd wrote *Tahafut al-Tahafut* (Refuting the Refuse), pointing out Ghazali's errors in verbatim. Concerning the application of classical logic into an Islamic legally valid context, Ibn Rushd's more important work was probably *Kitab al-Kashf* – a philosophical critique on the Ash'arite system of *mantiq*, proposing a stricter (or more ostentative) application of Aristotelian logic in Islamic discourse.

Acknowledging Ibn Sina (al-Razi, al-Tusi)

Defending Ibn Sina's pinpoint of Aristotelian fallacies, the Muslim philosopher Nasir al-Tûsi (1201-1274) reflected on the metaphysical weakness of assertoric statements, thereby moving Islamic philosophy into the interesting realms of polyvalent logic.¹²

Likewise, the Muslim thinker and scholar Fakhr ad-Din al-Râzi (1150-1210) supported Ibn Sina's critique of Aristotle's "first figure", using Ibn Sina's work to formulate a Muslim system of inductive logic, foreshadowing the modern system of inductive reasoning developed by John Stuart Mill (1806–1873).¹³ According to Wael B. Hallaq, Al-Râzi also applied inductive logic to Islamic *Sharia* (law) and *Fiqh* (jurisprudence).¹⁴

Rebuttal of *mantiq* from Islamic philosophy (Ibn Taymîya)

The arguments of the Muslim scholar and philosopher Taqi al-Din Ibn Taymîya (1263-1328) presented a philosophical break with the notion of using logic in Islamic *shari'a* and philosophy.

¹² Tony Street (July 23, 2008). "Arabic and Islamic Philosophy of Language and Logic". *Stanford Encyclopedia of Philosophy*.

¹³ Muhammad Iqbal, *The Reconstruction of Religious Thought in Islam*, "The Spirit of Muslim Culture" (cf. [2] and [3])

¹⁴ Hallaq, Wael B. (1985–1986), "The Logic of Legal Reasoning in Religious and Non-Religious Cultures: The Case of Islamic Law and the Common Law", *Cleveland State Law Review* 34: page 79–96

Ibn Taymîya claimed that logic had corrupted man in his quest for God's *rida* (acceptance) by the use of classical Greek logic, resulting in often heretical metaphysical conclusions reached by Islamic philosophers, theologians, mystics, and others. In order to clean Islamic philosophy of these errors, Ibn Taymîya claimed that one had to revert to the position taken by the early Muslim scholars – such as imam Shafi'î – abandoning any later ideas that had been formed on the supportive basis of reasoning.

In his critical thesis on logic (*Jahd al-Qâriha fi Tajrîd al-Naîiha*) Ibn Taymiyyah argued against the certainty of syllogistic arguments, preferring the Islamic doctrine of analogy (*qiyâs*) instead of syllogism. His argument is that conclusions founded on induction cannot themselves be certain but only *probable*. Thus, a syllogism based on such concepts is no more certain than an argument based on analogy. He claimed that even scientific induction itself is founded on a process of analogy. His own model of analogical reasoning was based on that of juridical arguments.¹⁵

For Ibn Taymîya the logical fallacies of syllogism proved the inability of logic as instrument of true reasoning and of any true comprehension of creation.

“Syllogism... resembles the flesh of a camel found on the summit of a mountain. The mountain is not easy to climb, nor the flesh plump enough to make it worth hauling.”¹⁶

Ibn Taymîya's critique of classical logic and his idea that analogy can be more valid than syllogism, has taken very different philosophical roads. Today his works are forming both the basis of Islamic religious fundamentalism (*salaafiya*), but have also become philosophical inspiration for the development of ontological structures in semantic networks for artificial intelligence in computer science!¹⁷

¹⁵ Ruth Mas (1998). "Qiyas: A Study in Islamic Logic". *Folia Orientalia* 34: page 113–128.
<http://spot.colorado.edu/~rmas/MasQiyas1998.pdf>

¹⁶ Wael B. Hallaq: "Ibn Taymiyya Against the Greek Logicians", Oxford University Press, 2001

¹⁷ John F. Sowa and Arun K. Majumdar: "Analogical Reasoning", paper presented at International Conference on Conceptual Structures in Dresden, Germany, in July 2003 and published in A. Aldo, W. Lex, & B. Ganter, eds. (2003) *Conceptual Structures for Knowledge Creation and Communication*, LNAI 2746, Springer-Verlag, pp. 16-36.

Revival of *mantiq* in modern Islamic philosophy

After 500 years of Islamic philosophical discourse *mantiq* had finally become an accepted part of Islamic science in the 12th century, and *mantiq* was taught widely in madrasas (Islamic schools), especially to the students of the Shafa'î and Hanafî law schools; incorporating *mantiq* as an integrated part of Islamic curriculum.

Yet, in the 14th century we see Islamic philosophers, such as Ibn Khaldûn, defending the idea that logic is unsuitable for definition of religious creeds like *tawhid* (God's oneness), the Divine characters, the truth of prophecy or the Âkhirah (the Afterlife). The discourse on logic and its application into Islamic philosophy seems to linger on without anyone getting upper hand.

True to Arabic Muslim traditions, the excellence of *mantiq* was praised even through poetry. In early 16th century the Muslim scholar Abd ar-Rahman al-Akhdari wrote his famous poem *As-Sullam al-Munawraq Fi Ilm al-Mantiq*. This "Ornamented Ladder into the Science of Logic" explains the basics of Aristotelian logic for using it to support Islamic creed (*aqîdah*) and jurisprudence (*fiqh*) in 144 beautiful constructed verses.¹⁸

Finally, traces of Islamic logic (*mantiq*) are clearly visible in the arguments used by the Seljuk satirical narratives of Nasreddin Hoca (13th century). Nasreddin Hoca's adventures and his often absurd, but rational reasoning reflect the epistemology of Islamic *mantiq*, exploring the borders of classical logical arguments.¹⁹

Today, several modern or contemporary Islamic philosophers have chosen to regard *the science of logic* as an arbiter between traditional Islamic knowledge and modern physical science, whereas, *Mantiq*, in its purest Islamic form, is mostly used in connection with jurisprudence and rarely as a tool for philosophical reflection.²⁰

¹⁸ Shaykh Hamza Karamali from the renowned SunniPath Academy is using "As-Sullam" as basic syllabus for teaching *mantiq* to his students.

¹⁹ Shane N. Phillipson, Maria McCann: "Conceptions of Giftedness: sociocultural perspectives", Routledge, 2007, page 291

²⁰ Dr. Ismail al-Farûki is one of them

Conclusion

Evidently, Muslim philosophers relied heavily on the use of classical Greek logic to both support and refute their ideas and arguments. Some have embraced the methodology of classical logic in its purest form (Ibn Rushd), others have tried to adapt the merits of logic into Islamic philosophy (al-Ghazali), while others have rejected the idea of logic as valid part of an Islamic concept (Ibn Taymiyyah).

However, out of the 1400 year long religious and intellectual discourse on the topic of Aristotelian logic, a distinctive Islamic methodology of reasoning has emerged (*mantiq*), which is now considered curriculum at Islamic schools, and presented to the outside world as something specifically *Islamic*.

One could claim that without the works of Aristotle, *mantiq* would probably never have been created on its own. But in virtuous support of the 1400 years of intensive Islamic discourse on Aristotelian logic, there can't be left any doubt that Islamic philosophy has proved to be a vital catalyst for today's modern concepts of logic and reasoning.

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